IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	:
	: Group Art Unit: 2616
Jozef Babiarz	:
	: Examiner: Raj Jain
Appln. No.: 10/799,704	:
	: Confirmation No.: 8973
Filed: March 15, 2004	:
	: Customer No.: 21967
For: TECHNIQUE FOR END-TO-END ADMISSION CONTROL OF REAL-TIME PACKET FLOWS	:

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed June 9, 2008, and in response to the Notice of Panel Decision from Pre-Appeal Brief Review dated August 19, 2008.

REAL PARTY IN INTEREST

The Appellant, Jozef Babiarz, is the Applicant in the above-identified patent application. The Appellant has assigned his entire interest in the above-identified patent application to Nortel Networks Limited, 2351 Boulevard Alfred-Nobel, St. Laurent, Quebec, H4S 2A9 Canada.

RELATED APPEALS AND INTERFERENCES

The Appellant, the Appellant's legal representative, and the Assignee are not aware of any other appeals or interferences which will directly affect, be directly affected by, or have a bearing on the Board's decision in this Appeal.

STATUS OF CLAIMS

Claims 1-20, 22, and 23 are pending in the above-identified patent application. Claims 1-16, 18-20, 22, and 23 were finally rejected in an Office Action dated April 8, 2008. The final rejection of Claims 1-16, 18-20, 22, and 23 is hereby appealed.

Claims 1-16, 18-20, 22, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kelly (An ECN Probe Based Connection Acceptance Control) paper in view of Jacobs et al. (US 2003/0107994 A1).

Claim 17 stands objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent from including all of the limitations of the base claim and any intervening claims.

Claim 21 has been cancelled without prejudice.

STATUS OF AMENDMENTS

No amendments have been filed subsequent to the final rejection of claims 1-16, 18-20, 22, and 23 in the Office Action dated April 8, 2008.

SUMMARY OF INVENTION

The claimed invention, as set forth in claim 1, and as described and shown in the specification and Figures 1-6 of the above-identified patent application, respectively, is directed to a method for end-to-end admission control of real-time packet flows in a network having a plurality of network elements(*See*, e.g., page 10, lines 11-17). The method may comprise transmitting at least one probe packet from a first network element to a second network element via a network path (*See*, e.g., Figure 1, step 104; page 11, line 14 to page 12, line 3). The method may also comprise determining, at at least one intermediate network element on the network path, at least one flow rate associated with a plurality of packets (*See*, e.g., Figure 1, step 106; page 12, lines 4-18). The method may further comprise encoding at least two predetermined bits in the at least one probe packet based at least in part upon the at least one flow rate (*See*, e.g., Figure 1, step 110; Figure 2, page 13, lines 5-14; page 14, line 11 to page 15, line 17). The

method may still further comprise controlling an admission of additional packets into the network based at least in part on the encoding of the at least two predetermined bits in the at least one probe packet (*See*, e.g., Figure 1, steps 122 and 124, page 17, lines 4-23).

The claimed invention, as set forth in claim 23, and as described and shown in the specification and Figures 1-6 of the above-identified patent application, respectively, is directed to a system for end-to-end admission control of real-time packet flows in a network (*See*, e.g., page 10, lines 11-17). The system may comprise a first network element that transmits at least one probe packet to a second network element via a network path (*See*, e.g., Figure 1, step 104; page 11, line 14 to page 12, line 3). The system may also comprise at least one intermediate network element on the network path that: determines at least one flow rate associated with a plurality of packets (*See*, e.g., Figure 1, step 106; page 12, lines 4-18); and encodes at least two predetermined bits in the at least one probe packet based at least in part upon the at least one flow rate (*See*, e.g., Figure 1, step 110; Figure 2, page 13, lines 5-14; page 14, line 11 to page 15, line 17). The system may further comprise an admission control module that controls an admission of additional packets into the network based at least

in part on an examination of the at least two predetermined bits in the at least one probe packet (*See*, e.g., Figure 1, steps 122 and 124, page 17, lines 4-23).

GROUNDS OF REJECTION ON APPEAL

Claims 1-16, 18-20, 22, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kelly (An ECN Probe Based Connection Acceptance Control) paper in view of Jacobs et al. (US 2003/0107994 A1).

ARGUMENT

The Appellants respectfully appeal the decision of the Examiner to finally reject claims 1-16, 18-20, 22, and 23 of the above-identified patent application. As discussed below, it is respectfully submitted that the Examiner has failed to establish a prima facie case of obviousness against the appealed claims.

I. THE EXAMINER HAS FAILED TO ESTABLISH A PRIMA FACIE CASE OF OBVIOUSNESS AGAINST CLAIMS 1-16, 18-20, 22, AND 23

The Examiner asserts that claims 1-16, 18-20, 22, and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kelly T. (An ECN Probe Based Connection Acceptance Control) paper (hereinafter "Kelly") in view of Jacobs et al. (US 2003/0107994 A1) (hereinafter "Jacobs").

Under 35 U.S.C. § 103, the Patent Office bears the burden of establishing a prima facie case of obviousness. In re Fine, 837 F.2d 1071, 1074 (Fed. Cir. 1988). There are four separate factual inquiries to consider in making an obviousness determination: (1) the scope and content of the prior art; (2) the level of ordinary skill in the field of the invention; (3) the differences between the claimed invention and the prior art; and (4) the existence of any objective evidence, or "secondary considerations," of non-obviousness. Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966); see also KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727 (2007). An "expansive and flexible approach" should be applied when determining obviousness based on a combination of prior art references. KSR, 127 S. Ct. at 1739. However, a claimed invention combining multiple known elements is not rendered obvious simply because each element was known independently in the prior art. Id. at 1741. Rather, there must still be some "reason that would have prompted" a person of ordinary skill in the art to combine the elements in the specific way that he or she did. Id.; In re Icon Health & Fitness, Inc., 496 F.3d 1374, 1380 (Fed. Cir. 2007). Also, modification of a prior art reference may be obvious only if there exists a reason that would have prompted a person of ordinary skill to make the change. KSR, 127 S. Ct. at 1740-41.

Regarding claim 1, the Examiner asserts that the claimed invention would have been obvious in view of Kelly and Jacobs. Specifically, the Examiner asserts that Kelly discloses a method for end-to-end admission control of real-time packet flows in a network comprising "determining, at at least one intermediate network element on the network path, at least one flow rate associated with a plurality of packets," as presently claimed. Applicant respectfully disagrees. In contrast, Kelly merely discloses "sending a series of probe packets from A to B in an attempt to infer the level of congestion." *See*, e.g., Section 4, paragraph 2, lines 2-4. Accordingly, Kelly appears to be concerned only with sending packets from host A to host B and not determining at least one flow rate "<u>at at least one intermediate network element on the network path</u>," as presently claimed. (Emphasis added). Also, the Examiner relies on routers within a network as taught by Kelly as a disclosure of the claimed intermediate network elements on a network path. However, Applicant respectfully submits that the routers within the network as taught by Kelly are "on the network path" of the first network element and the second network element, as presently claimed. Moreover, Kelly merely discloses that there are routers within the network. However, nowhere does Kelly disclose, or even suggest, "determining, at at least one

intermediate network element on the network path, at least one flow rate associated with a plurality of packets," as presently claimed.

In addition, Applicant respectfully submits that Kelly fails to disclose, or even suggest, that routers within a network determine "at least one flow rate associated with a plurality of packets," as presently claimed. Indeed, Kelly merely discloses that the "probe-based connection acceptance control distributes the <u>admission decision</u> between the routers within the network." (Emphasis added). *See,* e.g., Section 1, column 2, last paragraph, lines 1-3. Therefore, Kelly merely discloses that the probe-based connection acceptance control distributes the control of <u>an admission of additional packets</u> between routers within a network and fails to disclose, or even suggest, that the routers within the network determine "at least one flow rate associated with a plurality of packets," as presently claimed. (Emphasis added). Also, Kelly discloses that <u>a sending end-system</u> is able to infer a level of congestion of a route between the sending end-system and a receiving end-system by sending ECN capable packets to the receiving end-system. (Emphasis added). *See,* e.g., Section 1, column 2, last paragraph, lines 3-9. Thus, Applicant respectfully submits that Kelly merely discloses determining, at a sending end-system, a

level of congestion on a route between the sending end-system and a receiving end-system, and fails to disclose, or even suggest, "determining, at at least one intermediate network element on the network path, at least one flow rate associated with a plurality of packets," as presently claimed.

Also, the Examiner asserts, and Applicant agrees, that Kelly fails to disclose, or even suggest, "encoding at least two predetermined bits in the at least one probe packet based at least in part upon a level of congestion associated with the at least one flow rate," as presently claimed. However, the Examiner alleges that Jacobs teaches this claim limitation. Applicant respectfully disagrees. In contrast, Jacobs merely discloses that "bits 7 and 6 of the IP header are used to as flags respectively for CE (congestion experience), ECT (ECN capable transport)." *See*, e.g., paragraph [0026]. Specifically, Jacobs merely discloses that only bit 7 of the IP header is used to flag for CE (congestion experience) and that bit 6 of the IP header is used to flag for ECT (ECN capable transport). Thus, bit 6 of the IP header is used to indicate whether participants in a session are ECN-capable (e.g., act either as receivers which signal back receipt of a notification, or as senders that respond to receipt of a signal from a receiver), and is not encoded based at least in part upon a

level of congestion associated with at least one flow rate, as presently claimed. *See*, e.g., paragraph [0012]. In addition, Jacobs discloses with respect to Figure 5b that "if router A experiences congestion, then, in the data flow directed to the customer terminals, the router sets the CE bit in some randomly chosen RTP data packets from the data stream before forwarding them to the customer terminals." *See*, e.g., paragraph [0026]. Therefore, as illustrated in Figure 5b of Jacobs, only bit 7 indicates congestion, while bit 6 indicates that sender and receiver are ECN capable transports. Thus, Applicant respectfully submits that Jacobs merely discloses a single bit to indicate congestion along a given path or link in a path and fails to disclose, or even suggest, "encoding at least two predetermined bits in the at least one probe packet based at least in part upon a level of congestion associated with the at least one flow rate," as presently claimed.

Further, the Examiner asserts that Jacobs discloses "controlling an admission of additional packets into the network based at least in part on the encoding of the at least two predetermined bits in the at least one probe packet," as presently claimed. Applicant respectfully disagrees. In contrast, Jacobs merely discloses that "at the data source, in response to the congestion notification contained in the said

control packet, reducing the loading network resources by the said data source." *See*, e.g., paragraph [0007]. Thus, the data source of Jacobs merely reduces the loading network resources and fails to disclose, or even suggest, "controlling an admission of additional packets," as presently claimed.

Further, the Examiner asserts, but Applicant disagrees, that one skilled in the art would have been motivated to incorporate the teaching of Jacobs within Kelly so as to improve and enhance overall network bandwidth efficiency and performance by reducing packet loss and retransmission by maintaining proper congestion levels within a communications network. In particular, Applicant respectfully submits that Jacobs teaches away from Kelly. As stated in MPEP § 2141.02, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). As confirmed in MPEP § 2145, it is improper to combine references where the references teach away from their combination. In re Grasselli, 713 F.2d 731 (Fed. Cir. 1983). Specifically, Kelly calculates congestion by determining whether a final marking proportion exceeds a threshold level. Also, Kelly discloses that probe packets are user datagram protocol

(UDP) packets with the ECN capable bit set in the IP header, a sequence number, and contain a timestamp for calculating the RTT (round trip time). (Emphasis added). *See*, e.g., Section 4, column 1, second paragraph, lines 6-8. In contrast, Jacobs determines congestion via a bit in the IP header of a data packet. Also, Jacobs discloses that data sender sets the ECT bit in the IP header in real-time transport protocol (RTP) data packets sent to the customer terminals. (Emphasis added). *See*, e.g., paragraph [0026]. One having ordinary skill in the art would not use the bit in the IP header of the real-time transport protocol (RTP) data packet of Jacobs to determine whether the final marking proportion exceeds the threshold level of user datagram protocol (UDP) data packets of Kelly.

In view of the foregoing, it is respectfully submitted that claim 1 is allowable over Kelly in view of Jacobs.

Regarding claims 2-16, 18-20, and 22, these claims are dependent upon independent claim 1. Thus, since independent claim 1 should be allowable as discussed above, claims 2-16, 18-20, and 22 should also be allowable at least by virtue of their dependency on independent claim 1. Moreover, these claims recite additional features which are not disclosed, or even suggested, by Kelly and Jacobs. Thus, these claims are

separately patentable over Kelly in view of Jacobs for at least the reasons stated below.

Claim 2 is separately patentable because Kelly in view of Jacobs fails to disclose denying the admission of the additional packets into the network if the at least two predetermined bits in the at least one probe packet are encoded to indicate that the at least one flow rate is greater than a predetermined rate. The rejection of claim 2 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 2.

Claim 3 is separately patentable because Kelly in view of Jacobs fails to disclose transmitting at least one second probe packet from the second network element to the first network element via the network path; encoding at least two second predetermined bits in the at least one second probe packet based at least in part upon the at least one flow rate; and controlling the admission of the additional packets into the network based at least in part on the encoding of the at least two second predetermined bits in the at least one second probe packet. The rejection of claim 3 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 3.

Claim 4 is separately patentable because Kelly in view of Jacobs fails to disclose that the first network element echoes information associated with the at least two second predetermined bits in the at least one second probe packet in a transmission to the network. The rejection of claim 4 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 4.

Claim 5 is separately patentable because Kelly in view of Jacobs fails to disclose that the admission of the additional packets is based at least in part on priorities or importance of the plurality of packets and the additional packets. The rejection of claim 5 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 5.

Claim 6 is separately patentable because Kelly in view of Jacobs fails to disclose that the admission of the additional packets into the network is controlled by an entity that controls the network. The rejection of claim 6 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 6.

Claim 7 is separately patentable because Kelly in view of Jacobs fails to disclose that information associated with the at least two predetermined bits in the at least one probe packet is

communicated to at least one of the first network element and the second network element. The rejection of claim 7 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 7.

Claim 8 is separately patentable because Kelly in view of Jacobs fails to disclose that the at least one intermediate network element is part of a bandwidth-limited path in the network. The rejection of claim 8 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 8.

Claim 9 is separately patentable because Kelly in view of Jacobs fails to disclose that the plurality of packets comprise real-time packets. The rejection of claim 9 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 9.

Claim 10 is separately patentable because Kelly in view of Jacobs fails to disclose that the plurality of packets comprise Internet Protocol (IP) packets. The rejection of claim 10 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 10.

Claim 11 is separately patentable because Kelly in view of Jacobs fails to disclose that the plurality of packets comprise voice over IP packets. The rejection of claim 11 is thus

improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 11.

Claim 12 is separately patentable because Kelly in view of Jacobs fails to disclose that the plurality of packets comprise video over IP packets. The rejection of claim 12 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 12.

Claim 13 is separately patentable because Kelly in view of Jacobs fails to disclose that the plurality of packets comprise real-time multimedia over IP packets. The rejection of claim 13 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 13.

Claim 14 is separately patentable because Kelly in view of Jacobs fails to disclose that the at least two predetermined bits are part of a Differentiated Services field in an IP header of the at least one probe packet. The rejection of claim 14 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 14.

Claim 15 is separately patentable because Kelly in view of Jacobs fails to disclose that the predetermined rate is based on a network bandwidth allocated for the plurality of packets. The rejection of claim 15 is thus improper because Kelly in view of

Jacobs fails to show, or reasonably suggest, each and every limitation of claim 15.

Claim 16 is separately patentable because Kelly in view of Jacobs fails to disclose that the predetermined rate is raised to a value above the allocated network bandwidth for a predetermined period of time. The rejection of claim 16 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 16.

Claim 18 is separately patentable because Kelly in view of Jacobs fails to disclose discontinuing at least one packet flow based on the encoded at least two predetermined bits. The rejection of claim 18 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 18.

Claim 19 is separately patentable because Kelly in view of Jacobs fails to disclose lowering a transmission rate between the first network element and the second network element or between any two network endpoints based on the encoded at least two predetermined bits. The rejection of claim 19 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 19.

Claim 20 is separately patentable because Kelly in view of Jacobs fails to disclose suspending packet transmissions without

terminating the connection between the first network element and the second network element or between any two network endpoints based on the encoded at least two predetermined bits. The rejection of claim 20 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 20.

Claim 22 is separately patentable because Kelly in view of Jacobs fails to disclose at least one computer readable medium for storing a computer program of instructions configured to be readable by at least one computer for instructing the at least one computer to execute a computer process for performing the method as recited in claim 1. The rejection of claim 22 is thus improper because Kelly in view of Jacobs fails to show, or reasonably suggest, each and every limitation of claim 22.

Regarding claim 23, the Examiner asserts that the claimed invention would have been obvious in view of Kelly and Jacobs. Specifically, the Examiner asserts that Kelly discloses a system for end-to-end admission control of real-time packet flows in a network, the system comprising "at least one intermediate network element on the network path that: determines at least one flow rate associated with a plurality of packets," as presently claimed. Applicant respectfully disagrees. In contrast, Kelly merely discloses "sending a series of probe

packets from A to B in an attempt to infer the level of congestion." *See*, e.g., Section 4, paragraph 2, lines 2-4. Accordingly, Kelly appears to be concerned only with sending packets from host A to host B and not determining at least one flow rate associated with a plurality of packets "at at least one intermediate network element on the network path," as presently claimed. (Emphasis added). Also, the Examiner relies on routers within a network as taught by Kelly as a disclosure of the claimed intermediate network elements on a network path. However, Applicant respectfully submits that the routers within the network as taught by Kelly are "on the network path" of the first network element and the second network element, as presently claimed. Moreover, Kelly merely discloses that there are routers within the network. However, nowhere does Kelly disclose, or even suggest, "at least one intermediate network element on the network path that: determines at least one flow rate associated with a plurality of packets," as presently claimed.

In addition, Applicant respectfully submits that Kelly fails to disclose, or even suggest, that routers within a network "determines at least one flow rate associated with a plurality of packets," as presently claimed. Indeed, Kelly merely discloses that the "probe-based connection acceptance

control distributes the admission decision between the routers within the network." (Emphasis added). *See*, e.g., Section 1, column 2, last paragraph, lines 1-3. Therefore, Kelly merely discloses that the probe-based connection acceptance control distributes the control of an admission of additional packets between routers within a network and fails to disclose, or even suggest, that the at least one router within the network "determines at least one flow rate associated with a plurality of packets," as presently claimed. (Emphasis added). Also, Kelly discloses that a sending end-system is able to infer a level of congestion of a route between the sending end-system and a receiving end-system by sending ECN capable packets to the receiving end-system. (Emphasis added). *See*, e.g., Section 1, column 2, last paragraph, lines 3-9. Thus, Applicant respectfully submits that Kelly merely discloses determining, at a sending end-system, a level of congestion on a route between the sending end-system and a receiving end-system, and fails to disclose, or even suggest, "at least one intermediate network element on the network path that: determines at least one flow rate associated with a plurality of packets," as presently claimed.

Also, the Examiner asserts, and Applicant agrees, that Kelly fails to disclose, or even suggest, at least one

intermediate network element on the network path that: "encodes at least two predetermined bits in the at least one probe packet based at least in part upon a level of congestion associated with the at least one flow rate," as presently claimed. However, the Examiner alleges that Jacobs teaches this claim limitation. Applicant respectfully disagrees. In contrast, Jacobs merely discloses that "bits 7 and 6 of the IP header are used to as flags respectively for CE (congestion experience), ECT (ECN capable transport)." *See,* e.g., paragraph [0026]. Specifically, Jacobs merely discloses that only bit 7 of the IP header is used to flag for CE (congestion experience) and that bit 6 of the IP header is used to flag for ECT (ECN capable transport). Thus, bit 6 of the IP header is used to indicate whether participants in a session are ECN-capable (e.g., act either as receivers which signal back receipt of a notification, or as senders that respond to receipt of a signal from a receiver) and is not encoded based at least in part upon a level of congestion associated with the at least one flow rate, as presently claimed. *See,* e.g., paragraph [0012]. In addition, Jacobs discloses with respect to Figure 5b that "if router A experiences congestion, then, in the data flow directed to the customer terminals, the router sets the CE bit in some randomly chosen RTP data packets from the data stream before forwarding

them to the customer terminals." *See, e.g.*, paragraph [0026]. Therefore, as illustrated in Figure 5b of Jacobs, only bit 7 indicates congestion, while bit 6 indicates that sender and receiver are ECN capable transports. Thus, Applicant respectfully submits that Jacobs merely discloses a single bit to indicate congestion along a given path or link in a path and fails to disclose, or even suggest, at least one intermediate network element on the network path that: "encodes at least two predetermined bits in the at least one probe packet based at least in part upon a level of congestion associated with the at least one flow rate," as presently claimed.

Further, the Examiner asserts that Jacobs discloses "an admission control module that controls an admission of additional packets into the network based at least in part on an examination of the at least two predetermined bits in the at least one probe packet," as presently claimed. Applicant respectfully disagrees. In contrast, Jacobs merely discloses that "at the data source, in response to the congestion notification contained in the said control packet, reducing the loading network resources by the said data source." *See, e.g.*, paragraph [0007]. Thus, the data source of Jacobs merely reduces the loading network resources and fails to disclose, or

even suggest, "an admission control module that controls an admission of additional packets," as presently claimed.

Further, the Examiner asserts, but Applicant disagrees, that one skilled in the art would have been motivated to incorporate the teaching of Jacobs within Kelly so as to improve and enhance overall network bandwidth efficiency and performance by reducing packet loss and retransmission by maintaining proper congestion levels within a communications network. In particular, Applicant respectfully submits that Jacobs teaches away from Kelly. As stated in MPEP § 2141.02, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). As confirmed in MPEP § 2145, it is improper to combine references where the references teach away from their combination. In re Grasselli, 713 F.2d 731 (Fed. Cir. 1983). Specifically, Kelly calculates congestion by determining whether a final marking proportion exceeds a threshold level. Also, Kelly discloses that probe packets are user datagram protocol (UDP) packets with the ECN capable bit set in the IP header, a sequence number, and contain a timestamp for calculating the RTT (round trip time). (Emphasis added). *See*, e.g., Section 4,

column 1, second paragraph, lines 6-8. In contrast, Jacobs determines congestion via a bit in the IP header of a data packet. Also, Jacobs discloses that data sender sets the ECT bit in the IP header in real-time transport protocol (RTP) data packets sent to the customer terminals. (Emphasis added). *See, e.g.*, paragraph [0026]. One having ordinary skill in the art would not use the bit in the IP header of the real-time transport protocol (RTP) data packet of Jacobs to determine whether the final marking proportion exceeds the threshold level of user datagram protocol (UDP) data packets of Kelly.

In view of the foregoing, it is respectfully submitted that claim 23 is allowable over Kelly in view of Jacobs.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the Examiner has failed to establish a prima facie case of anticipation or obviousness against the appealed claims. Thus, it is respectfully submitted that the final rejection of claims 1-12 is improper and the reversal of same is clearly in order and respectfully requested.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-0206, and please credit any excess fees to such deposit account.

Respectfully submitted,

Hunton & Williams LLP

By: Thomas E. Anderson
Registration No. 37,063

TEA/dd

Hunton & Williams LLP
1900 K Street, N.W.
Washington, D.C. 20006-1109
Telephone: (202) 955-1500
Facsimile: (202) 778-2201

Date: September 19, 2008

CLAIMS APPENDIX

1 (Previously Presented). A method for end-to-end admission control of real-time packet flows in a network having a plurality of network elements, the method comprising:

transmitting at least one probe packet from a first network element to a second network element via a network path;

determining, at at least one intermediate network element on the network path, at least one flow rate associated with a plurality of packets;

encoding at least two predetermined bits in the at least one probe packet based at least in part upon a level of congestion associated with the at least one flow rate; and

controlling an admission of additional packets into the network based at least in part on the encoding of the at least two predetermined bits in the at least one probe packet.

2 (Previously Presented). The method according to claim 1, further comprising denying the admission of the additional packets into the network if the at least two predetermined bits in the at least one probe packet are encoded to indicate that the at least one flow rate is greater than a predetermined rate.

3 (Previously Presented). The method according to claim 1,

further comprising:

transmitting at least one second probe packet from the second network element to the first network element via the network path;

encoding at least two second predetermined bits in the at least one second probe packet based at least in part upon a level of congestion associated with the at least one flow rate; and

controlling the admission of the additional packets into the network based at least in part on the encoding of the at least two second predetermined bits in the at least one second probe packet.

4 (Previously Presented). The method according to claim 3, wherein the first network element echoes information associated with the at least two second predetermined bits in the at least one second probe packet in a transmission to the network.

5 (Previously Presented). The method according to claim 1, wherein the admission of the additional packets is based at least in part on priorities or importance of the plurality of packets and the additional packets.

6 (Original). The method according to claim 1, wherein the admission of the additional packets into the network is controlled by an entity that controls the network.

7 (Previously Presented). The method according to claim 1, wherein information associated with the at least two predetermined bits in the at least one probe packet is communicated to at least one of the first network element and the second network element.

8 (Previously Presented). The method according to claim 1, wherein the at least one intermediate network element is part of a bandwidth-limited path in the network.

9 (Previously Presented). The method according to claim 1, wherein the plurality of packets comprise real-time packets.

10 (Previously Presented). The method according to claim 1, wherein the plurality of packets comprise Internet Protocol (IP) packets.

11 (Previously Presented). The method according to claim 10, wherein the plurality of packets comprise voice over IP packets.

12 (Previously Presented). The method according to claim 10, wherein the plurality of packets comprise video over IP packets.

13 (Previously Presented). The method according to claim 10, wherein the plurality of packets comprise real-time multimedia over IP packets.

14 (Previously Presented). The method according to claim 10, wherein the at least two predetermined bits are part of a Differentiated Services field in an IP header of the at least one probe packet.

15 (Previously Presented). The method according to claim 2, wherein the predetermined rate is based on a network bandwidth allocated for the plurality of packets.

16 (Previously Presented). The method according to claim 15, wherein the predetermined rate is raised to a value above the allocated network bandwidth for a predetermined period of time.

17 (Previously Presented). The method according to claim 1, wherein encoding the at least two predetermined bits in the at

least one probe packet based at least in part on the at least one flow rate comprises encoding two predetermined bits in the at least one probe packet to indicate one of four levels of congestion associated with the at least one flow rate.

18 (Previously Presented). The method according to claim 1, further comprising discontinuing at least one packet flow based on the encoded at least two predetermined bits.

19 (Previously Presented). The method according to claim 1, further comprising lowering a transmission rate between the first network element and the second network element or between any two network endpoints based on the encoded at least two predetermined bits.

20 (Previously Presented). The method according to claim 1, further comprising suspending packet transmissions without terminating the connection between the first network element and the second network element or between any two network endpoints based on the encoded at least two predetermined bits.

21 (Cancelled).

22 (Previously Presented). At least one computer readable medium for storing a computer program of instructions configured to be readable by at least one computer for instructing the at least one computer to execute a computer process for performing the method as recited in claim 1.

23 (Previously Presented). A system for end-to-end admission control of real-time packet flows in a network, the system comprising:

a first network element that transmits at least one probe packet to a second network element via a network path;

at least one intermediate network element on the network path that:

determines at least one flow rate associated with a plurality of packets; and

encodes at least two predetermined bits in the at least one probe packet based at least in part upon a level of congestion associated with the at least one flow rate; and

an admission control module that controls an admission of additional packets into the network based at least in part on an examination of the at least two predetermined bits in the at least one probe packet.

EVIDENCE APPENDIX

[NONE]

RELATED PLEADINGS APPENDIX

[NONE]